



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/681,949	06/29/2001	Steven Eric Linthicum	RD-29070	1048

6147 7590 05/23/2003

GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH CENTER
PATENT DOCKET RM. 4A59
PO BOX 8, BLDG. K-1 ROSS
NISKAYUNA, NY 12309

EXAMINER

MILLER, CRAIG S

ART UNIT	PAPER NUMBER
----------	--------------

2857

DATE MAILED: 05/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/681,949

Applicant(s)

Zinthicum et al.

Examiner

Craig Steven Miller

Group Art Unit

2857

— The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address —

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

☒ Responsive to communication(s) filed on 24 July 2001

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1-1; 453 O.G. 213.

Disposition of Claims

☒ Claim(s) 1-25 is/are pending in the application.

Of the above claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-25 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).

☐ All ☐ Some* ☐ None of the:

☐ Certified copies of the priority documents have been received.

☐ Certified copies of the priority documents have been received in Application No. _____

☐ Copies of the certified copies of the priority documents have been received

in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____

Attachment(s)

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 3

☐ Interview Summary, PTO-413

☒ Notice of Reference(s) Cited, PTO-892

☐ Notice of Informal Patent Application, PTO-152

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Other _____

Office Action Summary

1. The Examiner has provided an internet document, "*Industrial Haptics*" press release (hereafter referred to as "*Press Release*") by GE Corporate Research & Development (hereafter referred to as "GE"), dated March 1998. Press Release was linked to one of the listed Inventor's website (Christopher R. Volpe) under PROJECTS. This is evidence (though not proof) that the system described in the release is at least partially the result of applicant's invention. Press Release is deemed by the Examiner to be reasonably considered an offer for sale by GE of Applicant's device more than one year prior to Applicant's priority date. Therefore the Examiner has presented an offer for sale bar to Applicant's claimed invention below.

Because it is possible that the inventive entity of the instant claimed invention differs from the entity responsible for the system described in Press Release, the Examiner shall also present a rejection directed to this possibility should this be shown to be the case.

2. Claims 18-25 are rejected under 35 USC 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 18 and 24 are rejected because they include the modifier "*adapted*". The term "*adapted*" is defined as something having been designed for one use but used for a different purpose. Because applicant has not disclosed the any original use and because there appears no reason within applicant's specification to perform any such adaptation, it is not clear whether the applicant intended such an adaptation. Should the applicant have intended to use the term *for*, such should be made more clear.

As to claims 19-23 and 25, said claims are rejected to the extent that they inherit the flaws of their base claim(s).

The following rejections are based upon the best reasonable interpretation of the claims listed above.

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

*A person shall be entitled to a patent unless --
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.*

4. Claims 1, 7, 8, 9 and 15 are rejected under 35 U.S.C. § 102(b) as being anticipated by Press Release.

Press Release discloses VR (virtual reality) training of field service personnel (last paragraph), generating and evaluating (validating/feedback) assembly sequences (under Design for Assembly). Generic delivering of the sequences to the training personnel is deemed inherent within any instructional training system.

As to claims 7 and 15, Press release discloses the use of haptic interfaces (second paragraph).

5. Claims 1, 7, 8, 9 and 15 are rejected under 35 U.S.C. § 102(b) based upon a public use or sale of the invention.

Press Release by GE, dated March 1998 was linked to inventor Volpe's website under PROJECTS. This is evidence that the system described in the release is at least partially the result of applicant's invention. Press Release is deemed by the Examiner to be reasonably considered an offer for sale by GE of Applicant's device more than one year prior to Applicant's priority date. Examiner notes that readers are invited to contact GE personnel for more information about the system.

6. The following is a quotation of 35 U.S.C. § 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Subject matter developed by another person, which qualifies as prior art only under subsection (f) or (g) of section 102 of this title, shall not preclude patentability under this section where the subject matter and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person.

7. Claims 1-25 are rejected under 35 U.S.C. 103 as being unpatentable over Jayaram *et al.* (PCT/US99/30753) in view of Dede (Congressional testimony, Joint Hearing on Educational Technology in the 21st Century). and further in view of Nitta *et al.* (GB 2,327,289).

As to claims 1, 4-9 and 13-19 and 23, Jayaram *et al.* discloses the claimed invention essentially as claimed except that Jayaram *et al.*, while disclosing the system's use for ensuring maintainability, does not specify that VR should be used for the actual training of maintenance personnel. Dede discloses starting on page 9 through 12 that VR was then being used for teaching in general and particularly that VR should be used for training students in maintenance tasks. Therefore, because Jayaram *et al.* and Dede are both within the art of VR modeling, it would have been obvious to one of ordinary skill in the art at the time of the invention that one should use VR for training maintenance personnel using a system such as Jayaram *et al.* so as to receive the obvious benefits derived there from such as enhanced system flexibility. Furthermore, Jayaram *et al.* does not specify how the VR system should inform the personnel of the assembly steps. Nitta *et al.* discloses that personnel may be have assembly information presented in a step-by-step manner. Therefore, because Jayaram *et al.* and Nitta *et al.* are both within the art of training assembly personnel, it would have been obvious to one of ordinary skill in the art at the time of the invention that one should use step-by-step instruction display for training maintenance personnel using a system such as Jayaram *et al.* so as to receive the obvious benefits derived there from such as enhanced step repeatability as found in Nitta *et al.*

More particularly with respect to claims 4, 13, 16 and 19, said claims are directed towards importing CAD data. Jayaram *et al.* discloses such data import on page 4.

More particularly with respect to claims 5, 6, 16, 17 and 23, said claims are directed towards creating component path sequences. Jayaram *et al.* discloses on page 6 VR determined

component path collision avoidance, on page 10, altering such trajectories and on page 12, trying multiple alternative sequences.

As to claims 2, 3, 10-12, 20-22, 24 and 25, said claims are directed towards specific multimedia information presentation to training personnel. Jayaram *et al.* as modified above discloses that personnel may be have assembly information presented in a step-by-step manner but does not specify the use of multimedia or natural language. Dede discloses at the bottom of page 10 that information presentation should be personalized for the student's learning style, including written and voice. Because Jayaram *et al.* and Dede are both within the art of training, it would have been obvious to one of ordinary skill in the art at the time of the invention that one should use computer generated written and/or verbal instruction training to maintenance personnel using a system such as Jayaram *et al.* so as to receive the obvious benefits derived there from such as enhanced student learning as taught by Dede.

More particularly with respect to claim 24, said claim is directed towards selecting a method of instruction presentation. This is a common teaching technique, but is also merely a matter of making the output mode adjustable. "...adjustability, where needed, is not a patentable advance." In re Stevens, 101 USPQ 284 (CCPA 1954), In re Brandt, 20 CCPA (Patents) 1005, 64 F.2d 693, 17 USPQ 295.

8. The Examiner concedes that the testimony of Dede is presented as future education technology and thus reasonably brings into question the enablement and operability of Dede. The Examiner notes that the rejections above combine the suggestions of use of Dede with clearly operable technology found within Jayaram *et al.* and Nitta *et al.* This fulfills the burden upon the Examiner since it is clear that one of ordinary skill in the art at the time the invention was made, could enable those future plans of Dede with then-existing known technology, note In re Downie, 152 USPQ 113 (CCPA 1966), In re Jacobs, 50 CCPA 1316, 318 F.2d 743, 137 USPQ 888 (1963). Other aspects of Dede are simply extensions of commonly used teaching techniques (relating methods to students' strengths).

9. The prior art made of record but not relied upon is deemed pertinent to applicant's disclosure.

Good *et al.* (5,185,561) discloses a torque haptic device.

Doi *et al.* (5,590,268) discloses VR of a 3-D workspace.

Tosaki (5,712,649) discloses a head mounted VR display.

Kato *et al.* (5,999,185) discloses VR training.

Jayaram *et al.* (US 2002/0123812 A1) discloses a virtual assembly design environment (VADE) but was not published before the filing date of the instant application.

Burns (Design of a Six Degree of Freedom Haptic Interface) discloses such a Haptic device.

Yuan *et al.* (Mechanical Assembly with Data Glove Devices) discloses data gloves for VR manipulations.

Steffan *et al.* (Integration of Virtual Reality based Assembly Simulation into CAD/CAM Environment) discloses modeling of VR tools used to operate on other model VR elements.

Volpe Website (Internet document www.crd.ge.com/~volpecr/) discloses a link under PROJECTS to Industrial Haptics Fact Sheet.

Industrial Haptics Fact Sheet (Internet document www.crd.ge.com/esl/cgsp/fact_sheet/indhap/index.html) links to Press Release.

Press Release (Internet .pdf document) discloses a VR maintenance design, evaluation and training system using a Haptic interface.

Jayaram *et al.* (A Virtual Assembly Design Environment) discloses using VR for generic training, improving system design and system operations.

Connacher *et al.* (Virtual Assembly Using Virtual Reality Techniques) discloses:

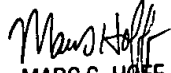
updating system design, page 7;
determining system maintenance "soft zones" and component trajectories, page 9;
multiple assembly operation sequences, page 10;
optimizing operating sequences, page 11;
component collision avoidance, page 14;
VR use for assembly personnel training, page 15;
Ensuring system for ability to perform maintenance functions, page 23.

10. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Craig Steven Miller whose telephone number is (703) 305-9730. Art Unit facsimile services are now available at (703) 308-7722.

The Examiner can normally be reached on Mondays and Thursdays from 7:30am-4pm EDT. Should repeated attempts to reach the Examiner be unsuccessful, the Examiner's Supervisor, Marc Hoff may be reached at (703) 308-1677.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956.

Craig Steven Miller (ss)
15 May 2003


MARC S. HOFF
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2300